

# Wholegrain intake of Danes 2011-2012

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The National Food Institute, Technical University of Denmark has in collaboration with The Danish Wholegrain Campaign calculated the Danes' wholegrain intake based on new data about Danish dietary habits and new information about wholegrain foods on the Danish market. In this article the National Food Institute also determine the proportion of the population who follow the Danish wholegrain recommendation of 75 grams per 10 megajoules per day.

The wholegrain content in the Danish diet in 2011-2012 seems to have increased markedly since last calculations from 2004. The proportion of the population who has a wholegrain intake equal to or higher than the recommended has also increased.

In 2008 Mejborn et al. defined the concept of wholegrain and compiled the scientific evidence for a recommended wholegrain intake of the Danish population. Subsequently a partnership, The Danish Wholegrain Campaign, was formed with the purpose of increasing the wholegrain intake in Denmark. The partnership includes the Danish Veterinary and Food Administration, the large health organisations in Denmark, flour mills and bread producers as well as several Danish retail companies.

The partners have worked together to increase the wholegrain content in a number of foods and have implemented campaigns to increase consumers' knowledge about wholegrain products. Several food

producers have added/increased the wholegrain content in their products. Since the partners put a specific wholegrain logo on foods with a predefined high content of wholegrain, it is now much easier for Danish consumers to choose wholegrain foods. To evaluate the effect of The Danish Wholegrain Campaign's initiatives, National Food Institute, Technical University of Denmark has, in collaboration with The Danish Wholegrain Campaign, calculated the Danes' wholegrain intake based on new data about Danish dietary habits and new information about wholegrain foods on the Danish market.

The overall aim of the project is to monitor the Danes' wholegrain intake in two years from the middle of 2011 to the middle of 2013. The average daily wholegrain intake of the Danish population (categorised by gender and age) was calculated based on dietary intake data from the first year, and the proportion of the population who follow the Danish wholegrain recommendation of 75 grams per 10 megajoules per day was determined.

## Method

The calculations were made using the same method as described in "Fuldkornsrapporten", a report on wholegrain intake, from 2008 (Biltoft-Jensen et al. 2008). They were based on the newest intake data from a Danish national survey of diet and physical activity. Data were collected from April 2011 to July 2012 using the same dietary survey method as previously by the National Food Institute. The data represent approximately half of the population who will be included in the 2011-2013 dietary survey.

The Nielsen Company, a market research services provider, has provided data to the National Food Institute about market shares in 2011 of products within the product groups fresh bread, crisp bread, flour blends, breakfast cereals, biscuits, pasta, rice, bulgur, frozen small bread and porridge. Data cover private-label products from the large grocery chains Coop, SuperBest and Rema1000.

Based on the information from The Nielsen Company, the National Food Institute has selected the most important varieties on the market within the above-mentioned food groups, covering by weight approximately 90% of the market. Information about the wholegrain content in these varieties was collected from the producers.

The wholegrain intake data were divided into age groups (children and adults) and gender. Since the data only comprise information for one year they cannot be divided into further age groups. At present the National Food Institute cannot guarantee that all age groups are equally represented in the data available. Figures may therefore change a little when the data basis is complete. Children 4-6 years old are not included in the present calculations, since data are not available at present.

It is determined how many (%) children and adults who follow the Danish wholegrain recommendation of 75s gram wholegrain per 10 megajoules per day.

In Denmark the recommended intake of wholegrain is at least 75 grams wholegrain per 10 megajoules per day. This means that if you have a daily energy intake of 8.5 megajoules as do many women and children, you should eat at least 64 grams of wholegrain per day. If one on the other hand has a daily energy intake of 11 megajoules, you must eat at least 83 grams of wholegrain per day.

### The wholegrain intake has increased

The calculations include 1,872 persons in total, 257 children (7-14 years old), and 1,615 adults (15-75 years old). Table 1 shows the average wholegrain intake (g/day) of the Danish population, divided into age groups (children and adults) and gender. The average wholegrain intake of the total population is 55 g/day. Children have almost the same wholegrain intake as adults. Boys and men eat slightly more wholegrain than girls and women. Table 1, furthermore, shows the change in wholegrain intake since the Danish national survey of diet and physical activity 2000-2004

Table 1. Average wholegrain intake of the Danish population and intake change, g/day.

Age	Number	Intake 2000-2004*	Number	Intake 2011-2012
<b>Children 4/7-14 years old#</b>				
Boys	593	32	126	61
Girls	566	24	131	47
All	1.159	28	257	54
<b>Adults 15 -75 years old</b>				
Men	2.189	39	763	64
Women	2.503	28	852	48
All	4.692	33	1.615	55
<b>All 4/7-75 years old#</b>				
All	5.851	32	1.872	55

\* Biltoft-Jensen et al. 2008

# Calculations based on data collected in 2000-2004 include children 4-6 years old; this age group is not included in the calculations 2011-2012

(Biltoft-Jensen et al. 2008) was performed. When figures for children are compared it is important to notice that the data from 2000-2004 include children 4-6 years old. In general, small children eat considerable less food than larger children, and when small children are excluded from the calculations the wholegrain intake of children becomes higher.

The results show that the average wholegrain intake of children has increased considerably since 2000-2004: from 28 g/day to 54 g/day, the intake has almost doubled. Part of the explanation for this increase in wholegrain intake of children in 2011-2012 is, as mentioned above, that small children are not included in the new calculations. Besides, very few children are included in the new calculations – only around 20% of those in 2000-2004, which makes the result more uncertain.

However, if we look at the results for adults, we find a similar increase in average wholegrain intake, from 33 g/day in 2000-2004 to 55 g/day in 2011-2012. This indicates that a part of the calculated increase in wholegrain intake of children is real.

## The wholegrain content in food has changed

The wholegrain content in rye bread has increased a little, while a significant increase in wholegrain content is found in coarse wheat bread and buns and in pasta, foods which are eaten in high amounts in Denmark. But also the wholegrain content in other buns and wheat bread, which traditionally do not contain wholegrain, has increased and contributes to the total wholegrain intake. Preliminary calculations on the basis of dietary intake do not indicate that the total bread and cereal intake has changed much since 2000-2004. Thus, the increase in wholegrain intake is due to an increase in the wholegrain content in several food groups.

For comparison of persons with different energy intake the results must be converted to gram per 10 megajoule per day to express similar energy intake. In this way the results can also be compared with the wholegrain recommendation of 75 grams per 10 megajoules per day.

The average dietary wholegrain content of a population group covers a variation between individuals in the group. If the average dietary wholegrain content of a population group is 60 grams per 10 megajoules per day, some individuals in the group have a higher dietary content, and others have a lower content.

Table 2. Average wholegrain content in the Danish diet as well as the proportion of the population who follow the Danish wholegrain recommendation.

Age	Number	Wholegrain, grams per day 10 meagjoules per day	Proportion of the population eating the recommended amount of wholegrain, %
<b>Children 7-14 years old</b>			
Boys	126	66	39
Girls	131	60	33
All	257	63	36
<b>Adults 15 -75 years old</b>			
Men	763	59	26
Women	852	59	25
All	1.615	59	25
<b>All 7-75 years old</b>			
All	1.872	60	27

Thus, even though the average dietary wholegrain content of the group is e.g. 60 grams per 10 megajoules per day, some persons in the group could meet the wholegrain recommendation of 75 grams per 10 megajoules per day.

Table 2 shows the dietary wholegrain content expressed as grams per 10 megajoules of children and adults, respectively, and how big a proportion (%) of the population groups meet the wholegrain recommendation.

### More Danes meet the recommendation

The average dietary wholegrain content for the total population (7-75 years old) is 60 grams per 10 megajoules per day. Children's diet contains slightly more wholegrain than the diet of adults, 63 grams per 10 megajoules per day compared to 59 grams per 10 megajoules per day. There is a tendency that the diet of boys contains slightly more wholegrain than the diet of girls, while the wholegrain content in men's and women's diets is similar.

In 2000-2004 the average dietary wholegrain content was 36 grams per 10 megajoules per day for all persons 4-75 years old (Biltoft-Jensen et al. 2008). Thus, there has been a considerable increase in the dietary wholegrain content in 2011-2012.

The results also show that the Danes have an average wholegrain intake of approximately 80 % of the recommended intake, and that 27 % of the population meets the wholegrain recommendation of at least 75 grams per 10 megajoules per day. Mainly children now meet the recommendation, 35 % compared to 25 % of adults. Even though the average dietary wholegrain content per 10 megajoules is only slightly lower for adults than for children, fewer adults than children meet the recommendation. This is due to the fact that a small group of adults has a very high wholegrain intake and thereby affects the calculated average intake.

Table 3 shows the change in the proportion of Danes who follow the wholegrain recommendation since the Danish national survey of diet and physical activity undertaken in 2000-2004 (Biltoft-Jensen et al. 2008).

The proportion of the population who meet the wholegrain recommendation has increased from 6 % in 2000-2004 to 27 % in 2011-2012. The increase is mainly seen amongst children, and a considerable number of children than adults now follow the recommendation of eating at least 75 grams wholegrain per 10 megajoules per day.

Table 3. Change in the proportion of the population who follow the wholegrain recommendation, %.

Age	Number	Proportion of the population, 2000-2004*	Number	Proportion of the population, 2011-2012
<b>Children 4/7-14 years old</b>				
Boys	593	7	126	39
Girls	566	3	131	33
All	1.159	5	257	36
<b>Adults 15 -75 years old</b>				
Men	2.189	8	763	26
Women	2.503	5	852	25
All	4.692	7	1.615	25
<b>All 4/7-75 years old#</b>				
All	5.851	6	1.872	27

\* Biltoft-Jensen et al. 2008

# Calculations based on data collected in 2000-2004 include children 4-6 years old; this age group is not included in the calculations 2011-2012

## Conclusion

The wholegrain content in the Danish diet in 2011-2012 seems to have increased markedly since 2000-2004, from on an average of 36 grams per 10 megajoules per day to 60 grams per 10 megajoules per day. The diet of children (7-14 years old) has marginally higher wholegrain content than the diet of adults (15-75 years old). The proportion of the population who has a wholegrain intake equal to or higher than the recommended 75 grams per 10 megajoules per day has increased from 6 % in 2000-2004 to 27 % in 2011-2012. More children than adults follow the wholegrain recommendation.

## References

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